

The PostgreSQL server will be installed with the following options:

```
'--prefix=/usr/local/postgresql-7.4.7'  
'--exec-prefix=/usr/local/postgresql-7.4.7'  
'--with-tcl'  
'--with-tclconfig=/usr/local/tcltk8.4.7/lib'  
'--with-tkconfig=/usr/local/tcltk8.4.7/lib'  
'--with-java'  
'--disable-shared'  
'--enable-thread-safety'  
'CFLAGS=-D_FILE_OFFSET_BITS=64-D_LARGEFILE_SOURCE'
```

Above is output from the "pg\_config --configure" command.

Other configuration features:

- vacuum
  - all standard databases will have their vacuum runs submitted via the fxa cron
  - all vacuum runs will have "verbose" option on
  - all output from vacuum runs will be saved in \$LOG\_DIR directory
- partitions
  - all standard databases will be placed in separate partitions
  - see Appendix A for partition sizes
- users
  - normal configuration will have only the users postgres and pguser defined
    - user oper will not be defined as a user known to postgresql
- database ownership
  - all standard databases will be owned by user postgres and all tables will be owned by user pguser
- adding plugins from /contrib directory will not allowed
- function languages available: plpgsql, C, sql,Tcl

#### Backup Plan

- o Daily dbdump to NAS (/data/fxa/DAILY\_BACKUP);
- o Maintain backups for three days on the NAS;
- o Roll out to backup tape weekly;
- o Ensure that triggers will be disabled during DB reload to prevent reissuing of products.

Future configuration changes:

- will move to the latest stable version of PostgreSQL 8.1.x for AWIPS OB8

## Appendix A

Data Base	Partition	WFO Megabytes	RFC Megabytes	
Pgdata	\$PGDATA_TOP/pgdata	500	500	
Hmdb	\$PGDATA_TOP/hmdb	600	600	
ifps, wwa	\$PGDATA_TOP/ifps	150	150	
Fxatext	\$PGDATA_TOP/fxatext	2,000	4,000	
ihfs, damcrest	\$PGDATA_TOP/ihfs	1,500	6,000	
Dblocalrfc1	\$PGDATA_TOP/rfclocal	NA	32,000	
Dblocalrfc2				
Dblocalrfc3				
Dblocalrfc4				
Dblocalrfc5				
Dblocalrfc6				
Dblocalrfc7				
Dblocalrfc8				
Totals		4,750	43,250	

## Appendix B: dx1 Machine Specs

Dell PowerEdge Server 2850  
Dual 3.2GHz Xeon CPUs with hyper-threading (2 physical and 2 virtual processors).  
Two internal 72GB U320 scsi disks configured in RAID 1.

Uses hardware mirroring between the two disks (PERC 4 onboard RAID).  
(Six internal disk drive bays, only two of which are actually used.)

4GB DDR RAM with 2GB swap  
1.44MB floppy  
24x IDE CD-RW/DVD drive  
Dual GBit network adapters  
Redundant power supplies

PERC 3 RAID adapter card was removed from each PX and installed in each DX. Powervault has been cabled to each DX using the PERC 3 adapter connection.

## Appendix C: PostgreSQL Configuration Parameters

File containing this data is /data/db/pgdata/postgresql.conf on dx1-nhda:

```
# -----
# PostgreSQL configuration file
# -----
#
# This file consists of lines of the form:
#
#   name = value
#
# (The '=' is optional.) White space may be used. Comments are
# introduced
# with '#' anywhere on a line. The complete list of option names and
# allowed values can be found in the PostgreSQL documentation. The
# commented-out settings shown in this file represent the default
# values.
#
# Any option can also be given as a command line switch to the
# postmaster, e.g. 'postmaster -c log_connections=on'. Some options
# can be changed at run-time with the 'SET' SQL command.
#
# This file is read on postmaster startup and when the postmaster
# receives a SIGHUP. If you edit the file on a running system, you have
# to SIGHUP the postmaster for the changes to take effect, or use
# "pg_ctl reload".

#-----
# CONNECTIONS AND AUTHENTICATION
#-----

# - Connection Settings -

tcpip_socket = true
max_connections = 100
    # note: increasing max_connections costs about 500 bytes of
shared
    # memory per connection slot, in addition to costs from
shared_buffers
    # and max_locks_per_transaction.
#superuser_reserved_connections = 2
#port = 5432
#unix_socket_directory = ''
#unix_socket_group = ''
#unix_socket_permissions = 0777      # octal
#virtual_host = ''                  # what interface to listen on; defaults
to any
#rendezvous_name = ''              # defaults to the computer name

# - Security & Authentication -

#authentication_timeout = 60 # 1-600, in seconds
#ssl = false
#password_encryption = true
#krb_server_keyfile = ''
```

```

#db_user_namespace = false

#-----
# RESOURCE USAGE (except WAL)
#-----

# - Memory -

shared_buffers = 1000          # min 16, at least max_connections*2, 8KB
each
#sort_mem = 1024              # min 64, size in KB
#vacuum_mem = 8192            # min 1024, size in KB

# - Free Space Map -

#max_fsm_pages = 20000         # min max_fsm_relations*16, 6 bytes each
#max_fsm_relations = 1000      # min 100, ~50 bytes each

# - Kernel Resource Usage -

#max_files_per_process = 1000 # min 25
#preload_libraries = ''

#-----
# WRITE AHEAD LOG
#-----

# - Settings -

#fsync = true                  # turns forced synchronization on or off
#wal_sync_method = fsync       # the default varies across platforms:
                                # fsync, fdatasync, open_sync, or open_datasync
#wal_buffers = 8               # min 4, 8KB each

# - Checkpoints -

#checkpoint_segments = 3       # in logfile segments, min 1, 16MB each
#checkpoint_timeout = 300       # range 30-3600, in seconds
#checkpoint_warning = 30        # 0 is off, in seconds
#commit_delay = 0               # range 0-100000, in microseconds
#commit_siblings = 5            # range 1-1000

#-----
# QUERY TUNING
#-----

# - Planner Method Enabling -

#enable_hashagg = true
#enable_hashjoin = true
#enable_indexscan = true
#enable_mergejoin = true
#enable_nestloop = true
#enable_seqscan = true

```

```

#enable_sort = true
#enable_tidscan = true

# - Planner Cost Constants -

#effective_cache_size = 1000 # typically 8KB each
#random_page_cost = 4        # units are one sequential page fetch
cost
#cpu_tuple_cost = 0.01       # (same)
#cpu_index_tuple_cost = 0.001 # (same)
#cpu_operator_cost = 0.0025  # (same)

# - Genetic Query Optimizer -

#geqo = true
#geqo_threshold = 11
#geqo_effort = 1
#geqo_generations = 0
#geqo_pool_size = 0          # default based on tables in statement,
                             # range 128-1024
#geqo_selection_bias = 2.0   # range 1.5-2.0

# - Other Planner Options -

#default_statistics_target = 10    # range 1-1000
#from_collapse_limit = 8
#join_collapse_limit = 8          # 1 disables collapsing of explicit JOINS

#-----
# ERROR REPORTING AND LOGGING
#-----

# - Syslog -

syslog = 2          # range 0-2; 0=stdout; 1=both; 2=syslog
syslog_facility = 'LOCAL0'
syslog_ident = 'postgres'

# - When to Log -

#client_min_messages = notice # Values, in order of decreasing detail:
#    debug5, debug4, debug3, debug2, debug1,
#    log, info, notice, warning, error

log_min_messages = info      # Values, in order of decreasing detail:
#    debug5, debug4, debug3, debug2, debug1,
#    info, notice, warning, error, log, fatal,
#    panic

#log_error_verbosity = default # terse, default, or verbose messages

#log_min_error_statement = panic # Values in order of increasing
severity:
#    debug5, debug4, debug3, debug2, debug1,
#    info, notice, warning, error, panic(off)

```

```
#log_min_duration_statement = -1 # Log all statements whose
                                # execution time exceeds the value, in
                                # milliseconds. Zero prints all queries.
                                # Minus-one disables.
```

```
#silent_mode = false           # DO NOT USE without Syslog!
```

```
# - What to Log -
```

```
#debug_print_parse = false
#debug_print_rewritten = false
#debug_print_plan = false
#debug_pretty_print = false
#log_connections = false
#log_duration = false
#log_pid = false
#log_statement = false
#log_timestamp = false
#log_hostname = false
#log_source_port = false
```

```
#-----
# RUNTIME STATISTICS
#-----
```

```
# - Statistics Monitoring -
```

```
#log_parser_stats = false
#log_planner_stats = false
#log_executor_stats = false
#log_statement_stats = false
```

```
# - Query/Index Statistics Collector -
```

```
#stats_start_collector = true
#stats_command_string = false
#stats_block_level = false
#stats_row_level = false
#stats_reset_on_server_start = true
```

```
#-----
# CLIENT CONNECTION DEFAULTS
#-----
```

```
# - Statement Behavior -
```

```
#search_path = '$user,public' # schema names
#check_function_bodies = true
#default_transaction_isolation = 'read committed'
#default_transaction_read_only = false
#statement_timeout = 0         # 0 is disabled, in milliseconds
```

```
# - Locale and Formatting -
```

```
#datestyle = 'iso, mdy'
```

```

#timezone = unknown          # actually, defaults to TZ environment
setting
#australian_timezones = false
#extra_float_digits = 0      # min -15, max 2
#client_encoding = sql_ascii # actually, defaults to database encoding

# These settings are initialized by initdb -- they may be changed
lc_messages = 'en_US.UTF-8'  # locale for system error message
strings
lc_monetary = 'en_US.UTF-8'   # locale for monetary formatting
lc_numeric = 'en_US.UTF-8'    # locale for number formatting
lc_time = 'en_US.UTF-8'       # locale for time formatting

# - Other Defaults -

#explain_pretty_print = true
#dynamic_library_path = '$libdir'
#max_expr_depth = 10000      # min 10

#-----
# LOCK MANAGEMENT
#-----

#deadlock_timeout = 1000     # in milliseconds
#max_locks_per_transaction = 64 # min 10, ~260*max_connections
bytes each

#-----
# VERSION/PLATFORM COMPATIBILITY
#-----

# - Previous Postgres Versions -

#add_missing_from = true
#regex_flavor = advanced     # advanced, extended, or basic
#sql_inheritance = true

# - Other Platforms & Clients -

#transform_null_equals = false

```